IN THE CLAIMS

Please cancel Claims 12, 13, 15 and 16 without prejudice to or disclaimer of the subject matter contained therein.

Please amend the claims as follows:

1. (Currently Amended) A writing process for forming a pattern on a multi-layer material composed of thin layers deposited on a substrate, in which said multi-layer material is irradiated by means of a beam of light ions, having an energy of the order of or less than a hundred keV, wherein one or more regions of the multi-layer material having individual sizes of the order of 1 micrometer or less are selectively irradiated, the irradiation dose being controlled so as to be a few 10^{16} ions/cm^2 or less, the irradiation modifying the composition of atomic planes in the material around an interface between two layers of the multi-layer material, wherein said light ions are ions having a mass less than 16 units of atomic mass.

2. (Previously Presented) Process according to claim 1, wherein the irradiation is carried out through a mask.

3. (Previously Presented) Process according to claim 1, wherein the writing process is adapted for the magnetic or magnetooptic recording of binary information, for the production of discrete magnetic materials, of magnetic memory circuits or of magnetically-controllable logic circuits, or for the production of sensors.

4. (Previously Presented) Process according to claim 1, wherein the writing process is adapted for optical recording process of a read-only memory type.

5. (Previously Presented) Process according claim 1, wherein the recording material is a magnetic multi-layer material, the individual layers of which are pure metals or transition metal alloys or rare earth alloys.

6. (Previously Presented) Process according to claim 1, wherein the writing process is adapted for producing magnetically-controllable optical circuits using a controlled variation of the optical index component associated with magnetism.

7. (Previously Presented) Process according to claim 1, wherein the beam of light ions comprises He^+ ions.

8. (Previously Presented) Process according to claim 2, wherein the writing process is adapted for the magnetic or magnetooptic recording of binary information, for the production of discrete magnetic materials, of magnetic memory circuits or of magnetically-controllable logic circuits, or for the production of sensors.

9. (Previously Presented) Process according to claim 2, wherein the writing process is adapted for optical recording process of a read-only memory type.

10. (Previously Presented) Process according to claim 2, wherein the writing process is adapted for producing magnetically-controllable optical circuits using a controlled variation of the optical index component associated with magnetism.

11. (Previously Presented) Process according to claim 1, wherein said irradiation is capable of modifying the composition around said interface between two layers without measurably increasing the surface roughness of the multi-layer material.

P1 Cont.

12. (Canceled)

13. (Canceled)

14. (Currently Amended) A process for performing irradiation on a multi-layer material having a buried layer disposed between at least one top layer and at least one bottom layer, said process comprising:

selecting one or more regions of the multi-layer material having a width in the order of 1 micrometer or less; and

irradiating the selected regions of the multi-layer material with (1) a beam of light ions having an energy of the order of or less than a hundred keV and (2) irradiation dose controlled so as to be a few 10^{16} ions/cm^2 or less such that the irradiation modifies the buried layer of the multi-layer material, wherein said light ions are ions having a mass less than 16 units of atomic mass.

15. (Canceled)

16. (Canceled)

17. (Previously Presented) Process according to claim 14, wherein the irradiation modifies a magnetic property of the buried layer.

18. (Currently Amended) Process according to claim 14, wherein the irradiation is capable of modifying the buried layer of the multi-layer material without significantly ~~effecting~~ ~~an~~ affecting the optical reflectivity of the at least one top layer of the multi-layer material.

19. (Previously Presented) Process according to claim 14, wherein said irradiation is capable of modifying the magnetic property of the buried layer without measurably increasing the surface roughness of the multi-layer material.